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CLAIMS

1. Use of an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide for the surface treatment of an alloy of silver containing an amount of germanium that is effective to reduce firestain and/or tarnishing so as to reduce or further reduce tarnishing of the alloy such that a sample can be supported close above a 20% solution of ammonium polysulphide for at least 30 minutes while retaining a generally untarnished appearance.
2. The use of claim 1, wherein the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide has C₁₂-C₂₄ alkyl groups.
3. The use of claim 1 or 2, wherein the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide is in an organic solvent.
4. The use of claim 3, wherein the solvent containing the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide is generally neutral.
5. The use of claim 3 or 4, wherein the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide is in a solvent based on n-propyl bromide.
6. The use of claim 3 or 4, wherein the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide is in (a) a composition obtainable by dissolving said alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide in an organic solvent and adding to said solution a relatively concentrated aqueous soap or detergent, or (b) an aqueous dispersion obtainable by dissolving said alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide in an organic solvent, adding to said solution a relatively concentrated aqueous soap or detergent, and diluting the resulting mixture with water or (c) a composition obtainable by dissolving said alkanethiol, alkyl thioglycollate, dialkyl sulfide or

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dialkyl disulfide direct in an aqueous mixture of an anionic surfactant and a neutral or anionic surfactant.

7. The use of claim 6, wherein the combination comprises a treatment agent selected from an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide, an anionic surface active agent and an amphoteric surface active agent in concentrations that are effective to solubilise the treatment agent.

8. The use of claim 6, wherein the combination comprises an alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide, an anionic surface active agent and a neutral surface active agent in concentrations that are effective to solubilise the treatment agent.

9. The use of claim 1 or 2, wherein the alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide is contained in a polish or impregnated into a polishing cloth.

10. The use of any preceding claim, wherein the alkanethiol or alkylthioglycollate is selected from stearyl mercaptan (octadecyl mercaptan), cetyl mercaptan (hexadecyl mercaptan), stearyl thioglycollate and cetyl thioglycollate.

11. The use of any preceding claim, for the surface treatment of an alloy that further comprises a grain refiner.

12. The use of any preceding claim for the surface treatment of a ternary alloy of silver, copper and germanium.

13. The use of claim 12, wherein the ternary alloy consists, apart from impurities and any grain refiner, of 80-96% silver, 0.1-5% germanium and 1-19.9% copper, by weight of the alloy.

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14. The use of claim 12, wherein the ternary alloy consists, apart from impurities and grain refiner, of 92.5-98% silver, 0.3-3% germanium, and 1-7.2% copper, by weight of the alloy, together with 1-40 ppm boron as grain refiner.

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15. The use of claim 12, wherein the ternary alloy consists, apart from impurities and grain refiner, of 92.5-96% silver, 0.5-2% germanium, and 1-7% copper, by weight of the alloy, together with 1-40 ppm boron as grain refiner.

10 16. The use of any of claims 1-11 for the treatment of a quaternary alloy of silver, copper, zinc and germanium.

17. The use of claim 16, wherein the zinc is present in a ratio, by weight, to the copper of no more than 1:1.

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18. The use of any preceding claim, wherein the alloy is in the form of a finished or semi-finished article.

19. Use of a C₁₂-C₂₄ alkanethiol, alkyl thioglycollate, dialkyl sulfide or dialkyl disulfide in the preparation of a tarnish inhibitor for an article of a silver/germanium alloy that has a silver content of at least 77 wt % and a germanium content of between 0.4 and 7%, the remainder principally being copper, so as to reduce tarnishing of the alloy such that a sample can be supported close above a 20% solution of ammonium polysulphide for at least 30 minutes while retaining a generally untarnished appearance.

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20. An alloy of silver, or a shaped article formed of said alloy, containing an amount of germanium that is effective to reduce firestain and/or tarnishing and that has been treated with a C₁₂-C₂₄ alkanethiol, alkyl thioglycollate, dialkyl sulphide or dialkyl disulphide.

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21. A method for manufacturing a tarnish-resistant silver article, which comprises the steps of:

forming a shaped article of an alloy of silver containing an amount of germanium that is effective to reduce firestain and/or tarnishing;

5 surface treating the article with an alkanethiol, alkyl thioglycollate, dialkyl sulphide or dialkyl disulphide; and

introducing the article into packaging.

22. The method of claim 21, wherein said packaging includes a presentation
10 box.

23. The method of claim 22, wherein the packaging includes external wrapping for the presentation box.